State Department of Health
Prevention of Significant Deterioration Program
Post May 2002 Hearing Actions Summary

May 2003

On May 6-8, 2002, the State Department of Health (Department) held a hearing to determine the adequacy of the State Implementation Plan to prevent significant deterioration of air quality. The Department reviewed the testimony and documents received and has taken action to address issues identified, including specific action items identified by the State Health Officer.

The following describes issues that were addressed following the hearing, including the specific action items identified by the State Health Officer.

I. **Issue**: Initiate appropriation action to gather public comment on the potential revision of N.D.A.C. ch. 33-15-15 and N.D.A.C. ch. 33-15-19 to recognize the CALPUFF air modeling system as an acceptable method for predicting expected ambient sulfur dioxide concentrations in PSD Class I areas and for visibility impact analysis.

Action: On April 15, 2003, the EPA published revisions to 40 CFR 51, Appendix W in the Federal Register. The revisions recognize CALPUFF as the preferred long range transport model for Class I increment analyses. The Department is in the process of adopting CALPUFF as the primary long range model in North Dakota.

II. **Issue**: Explore the potential benefits and potential implementation of the use of MM-5 data with the CALPUFF air modeling system.

Action: The Department has incorporated the use of MM-4 data for the year 1990 and MM-5 data for 1992 and is continuing assessment of such data for year 2000 and beyond.

III. **Issue**: Evaluate the need and potential implementation of statewide sulfur dioxide emission caps from major stationary sources to ensure no future violations of Class I increment.

Action: The Department is intending to submit for public comment proposed emission caps for all the power plants in North Dakota. Based on current dispersion modeling, the Department believes that the caps will assure compliance with the allowable increment.

IV. **Issue**: Continue to maintain and expand, if necessary, the air quality monitoring network to ensure the collection of accurate and defensible actual ambient sulfur dioxide data. Data should be collected at strategic locations designed to track trends in sulfur dioxide concentrations in Class I areas and to assess model performance.

Action: The Department has requisitioned equipment for an additional monitoring station to be located at the Lostwood Wilderness Area. The Department is currently evaluating resources to fund a second site in the South Unit of the Theodore Roosevelt National Park.

V. **Issue**: Continue to engage with the U.S. Environmental Protection Agency through dialogue and technical information exchange with the intent of advancing the air quality program and finding resolution to any outstanding issues.

Action: The Department has met with EPA on numerous occasions to discuss various issues regarding the PSD program. The Department and EPA entered a Memorandum of Understanding on May 2, 2003 which outlines actions necessary to maintain and improve air quality in the Class I areas. The Department and EPA continue to exchange information and ideas regarding implementation of the PSD program.

In addition to these items, the Hearing Officer recommended that the Department address the following items:

VI. **Issue**: Include a reasonable quantification of the background ambient sulfur dioxide due to distant sources not otherwise included as input to the model in any calculations of ambient concentrations of sulfur dioxide in Class I areas.

Action: The Department has evaluated this issue in a preliminary sense during the performance evaluation of the Calpuff model. Although zero was used in the evaluation, it is expected that the number should be greater than zero however still relatively small.

VII. **Issue**: Use a Cartesian grid as locations for the model's receptors in PSD Class I areas of adequate grid scale so as to achieve statistically true time-blocked average concentrations in the Class I areas.

Action: The Department has developed and implemented a Cartesian receptor grid system with a two kilometer spacing for the state's Class I areas.

VIII. **Issue**: Investigate and remove any bias in continuous emission monitoring (CEM) data prior to use.

Action: The Department has compared CEM emission rates to emission rates calculated using the AP-42, Compilation of Air Pollutant Emission Factors, average emission factor of 30(s). The Department has concluded that the comparison is not valid for individual sources. In most cases, the average AP-42 emission factor underestimates emission rates for North Dakota sources. Accordingly, the Department has revised the baseline emission rates for coal-fired power plants. The data analysis and results can be found in the document titled "Prevention of Significant Deterioration, Sulfur Dioxide Final Baseline Emission Rates - May 2003."

IX. **Issue**: Consider actual hourly-emitted sulfur dioxide from major sources (e.g., continuous emissions monitoring system data) as the most representative data of emitted sulfur dioxide from these sources for prediction of existing ambient sulfur dioxide concentrations in PSD Class I areas.

Action: The Department has reviewed this issue and believes the use of hour-by-hour CEM data when paired with concurrent meteorological data is more technically appropriate than constant 3-hour and 24-hour emission rates; however, there are legal questions surrounding the use of such methodology.

X. **Issue**: Review and consider refinements to the oil and gas baseline emission inventory.

Action: The Department's review indicated additional data were obtained which allowed for refinement of the emission rates for production wells in the Little Knife field. The results of this refinement can be found in the document titled "Prevention of Significant Deterioration, Sulfur Dioxide Final Baseline Emission Rates - May 2003."

XI. **Issue**: Refine the means by which to determine non-routine periodic reviews of Class I increments consumption through the use of trigger mechanisms.

Action: The Department has defined possible triggers for the review of the PSD program. These include:

- An increase in total SO_2 emissions by a certain percentage above 2000/2001 levels.
- An increase in SO_2 emissions from a single source by a certain percentage in consecutive years.
- New oil and gas development within 50 km of a Class I area which increases SO_2 emissions from the industry a certain percentage over 2000/2001 emissions.
- A new source (major or minor) application which would indicate an exceedance of the Class I increment for SO_2.
- A statistically significant trend in monitoring data at a Class I area indicating increases in SO_2 levels.
- Evidence of an adverse impact on air quality related values in a Class I area as demonstrated by the Federal Land Manager and agreed to by the Department.

XII. **Issue**: Provide to Federal Land Managers modeling outputs for individual receptors in Class I areas for assessment of air quality related values impacts.

Action: The estimated concentrations for individual receptors from modeling current-period (recent) emissions of sources can be transferred to FLMs on computer disk.